



# LN50 VEV

Electric All-Terrain Litter Vacuum

## Product Overview



Dec 2022



[www.madvac.com](http://www.madvac.com)

Technical specs are subject to change without prior notice





# Applications

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From concrete to grass, the LN50 **Vocational Electric Vehicle (VEV)** can tackle all types of urban terrain with ease

- Parks and grass areas
- Sidewalks
- Bike and pedestrian lanes
- Parking lots
- Curb side
- Alleys
- Pathways
- Alongside buildings





# Attributes

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- LN50 replaces **6 to 8** manual litter pickers (equal quantity of litter removed within same time period)
- Can collect litter that is dry, humid, or wet
- All-terrain vehicle
- Easy to operate, no CDL required
- Street legal lighting package







# Zero Emission

- If used 20 hours per week, (1000 hrs./yr.) each LN50 electric will reduce CO2 emissions by approximately **17 tons / year**







# Customers

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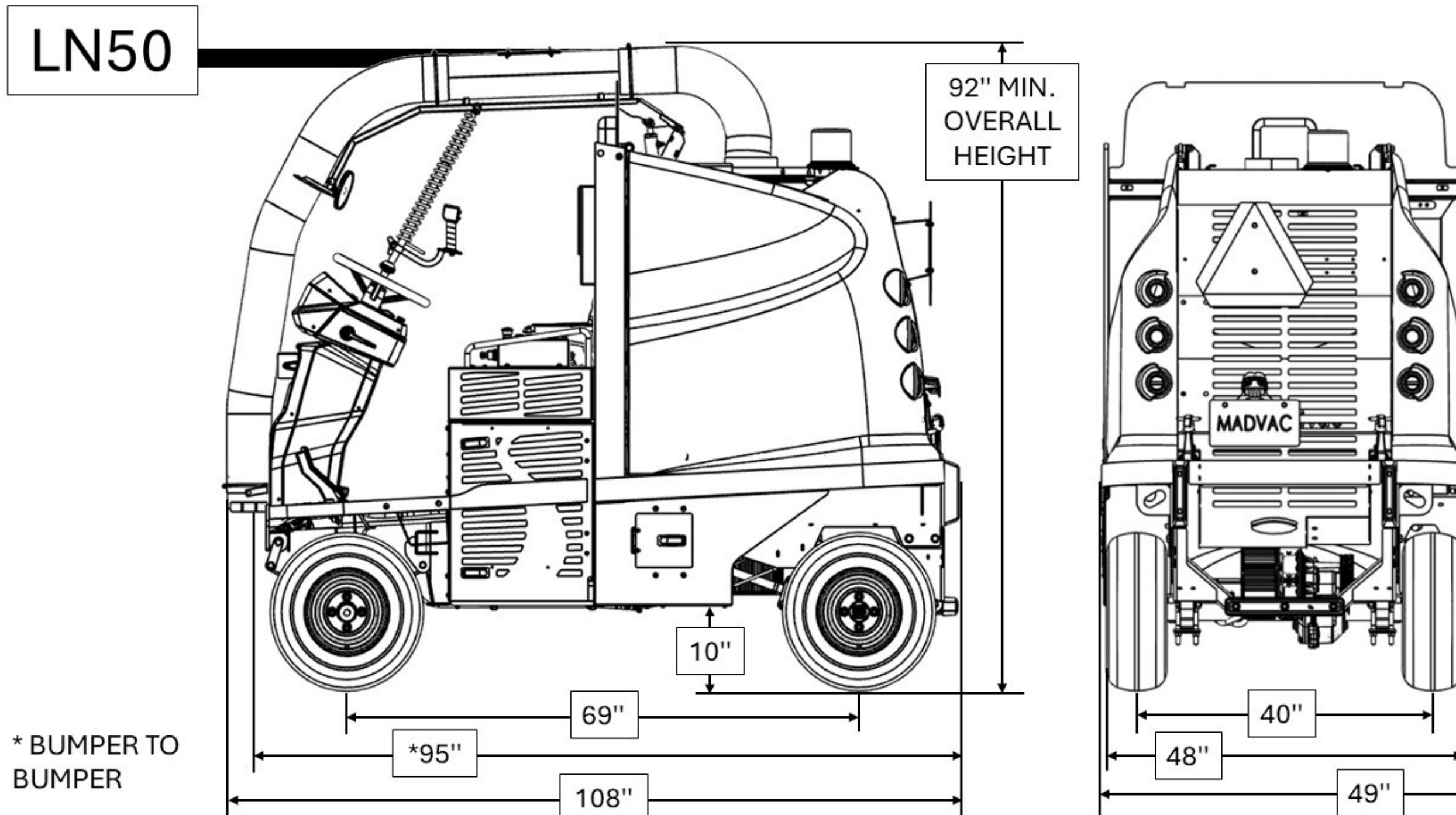


- Cities & municipalities
- Outdoor cleaning contractors
- Airports & seaports
- Transit authorities
- Healthcare services
- Distribution centers
- Shopping malls
- Educational & sports facilities
- Manufacturing facilities
- Amusement parks
- Casinos
- Military
- Correctional facilities





# Dimensions



## Inches to mm

10	254
40	1016
48	1219
49	1245
69	1753
92	2337
95	2413
108	2743

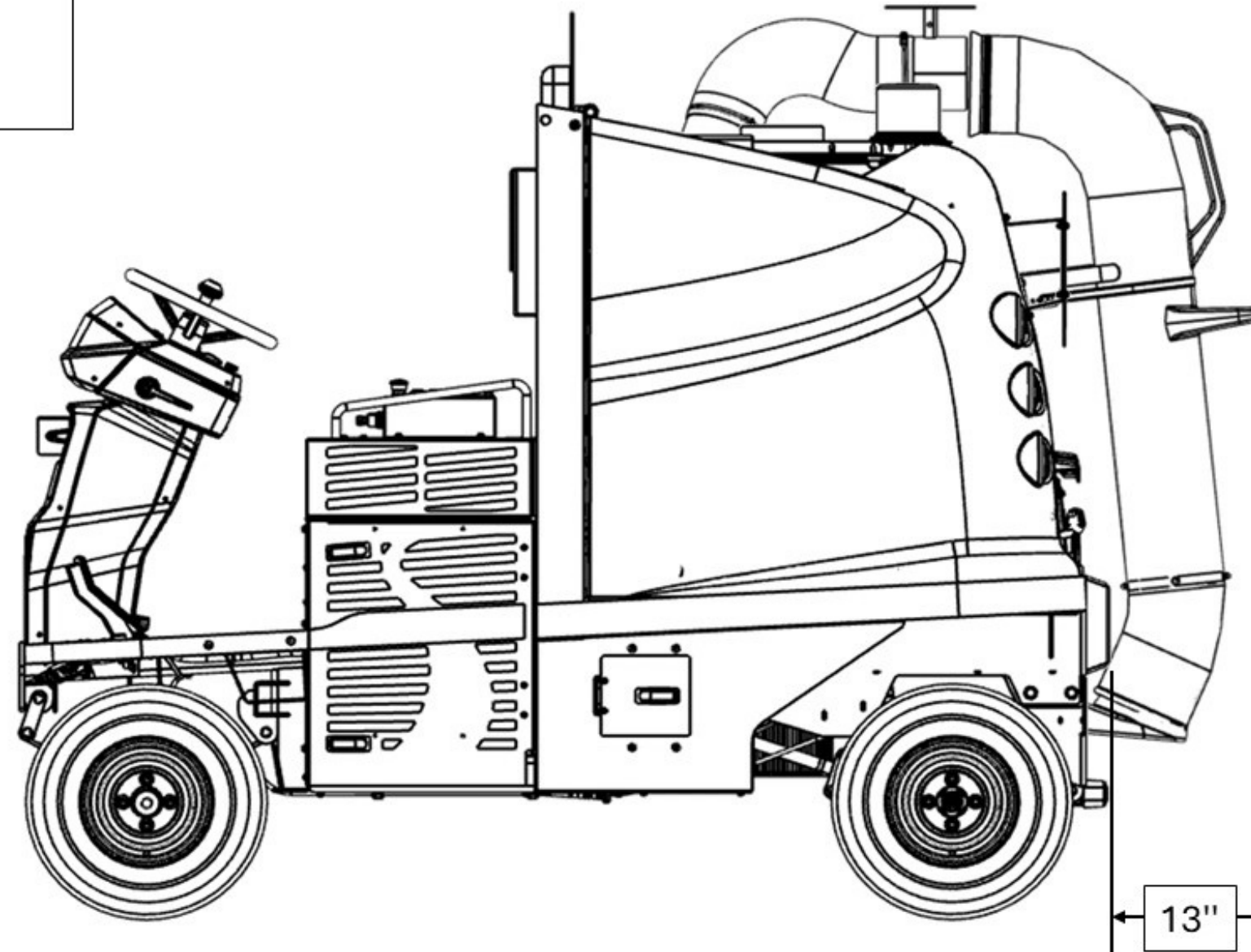




# Dimensions

WANDER  
HOSE

Inches to mm  
13 330





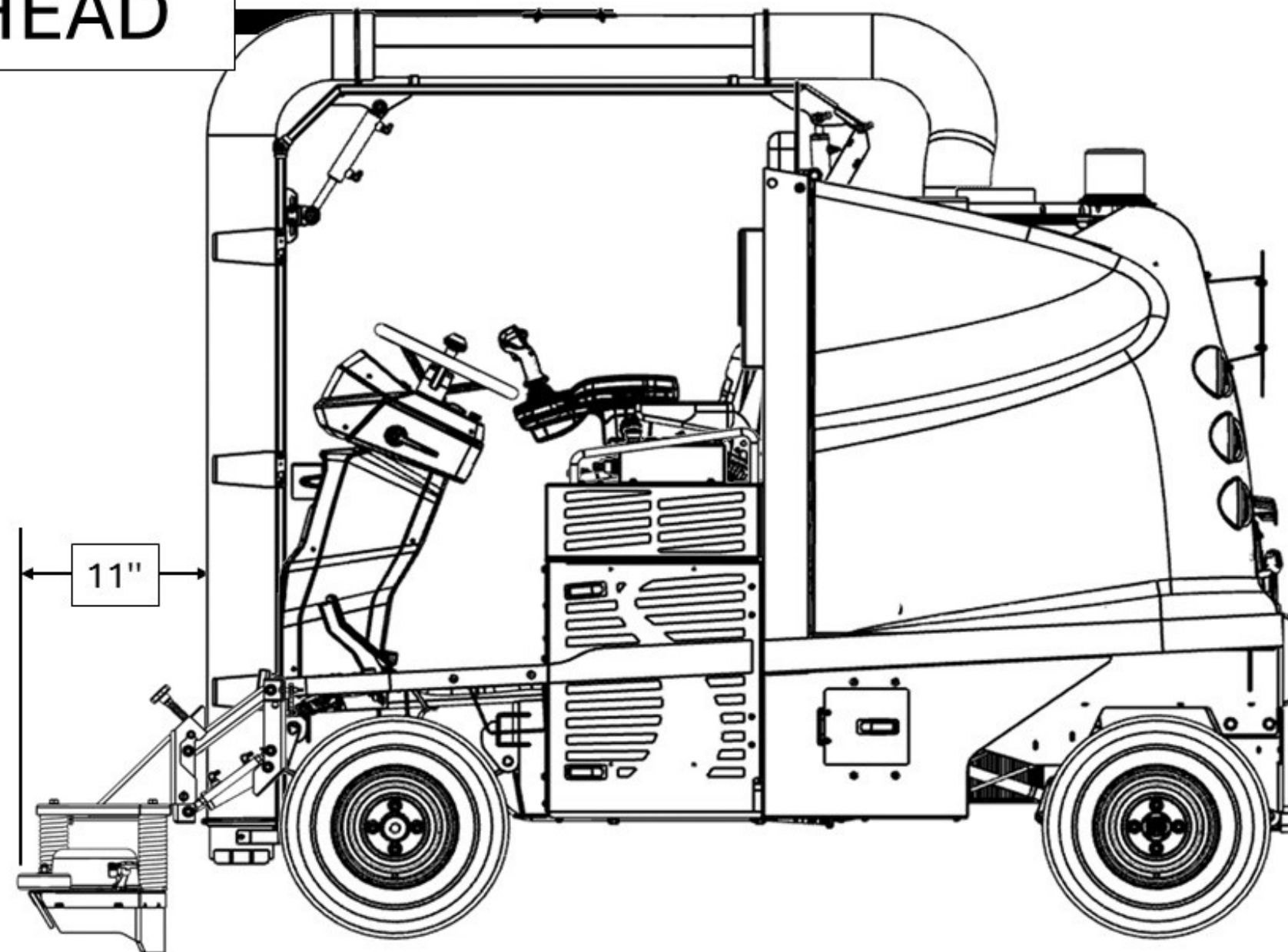


# Dimensions

VAC HEAD

Inches to mm

11 279

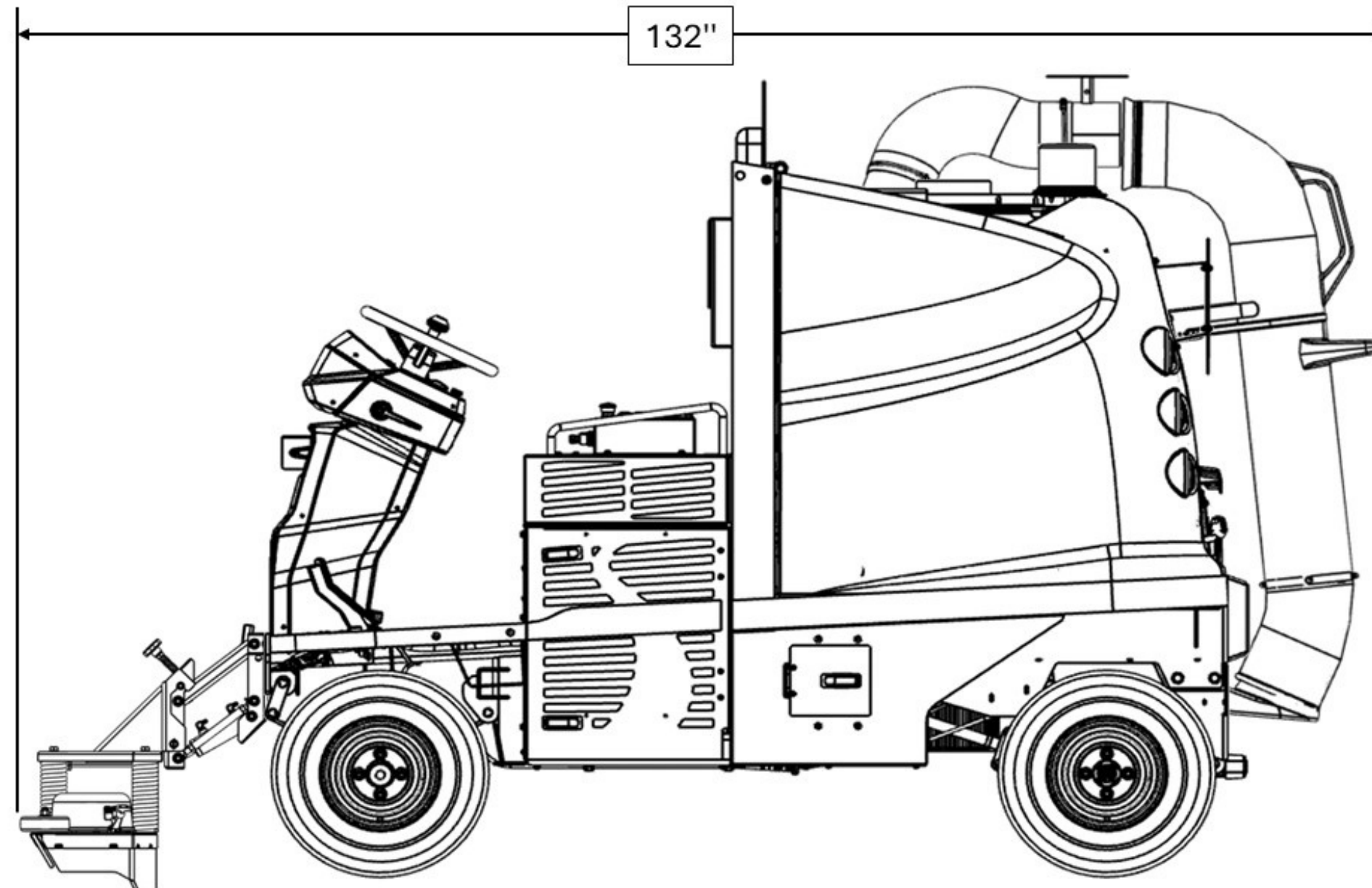






# Dimensions

WANDER  
HOSE  
+  
VAC  
HEAD



Inches to mm  
132 3353





# Weight



- Net/dry weight: 2356 lbs (1069 kg)
- Gross vehicle weight rating:  
2940lbs (1336 kg)
- Axle rating:
  - front 1980 lbs (898 kg)
  - rear 1980 lbs (898 kg)





## Frame and Body



- Heavy gauge steel body on a welded 1/4 in. (6.35 mm) structural steel frame
- Electrostatic powder-coated paint







# Lighting

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- Strobe beacon
- LED headlight
- LED turn signals
- LED brake lights
- LED flashers
- LED backup lights
- License plate holder with light
- SMV emblem







# Cabin

- Cab size: 48 cu. ft. (1.36 cu. m.)
- Seating: 40.5 in. (1029 mm) above ground
- One adjustable seat with integral armrest, headrest, backrest
- Optional – heated seat for operator comfort
- One safety lap belt
- Grab-handle and cup holder
- Optional – overhead sunshield roof helps operator stay cool
- Storage compartment







# Steering Wheel



- Automotive-type steering wheel with steering ball for ease of handling
- Rocker switches ::
  - Heated seat / headlight
  - Hazard
  - Beacon
  - Parking brake
  - Forward / neutral / reverse
  - Flasher left / right





# Instrument Panel

\* **Metric or Imperial**

- Speed
- Hourmeter
- Energy recuperation
- Battery charge level
- Forward / reverse
- Power consumption and vacuum consumption
- Operator presence indicator
- Parking brake indicator
- Left / right signal indicator
- Hazard light switch
- Key ignition for starting and stopping the vehicle







# Power



- Exprolink is OEM partner with **Zero Motorcycles USA** – the 'Tesla' of the motorcycle industry and offer 3x better 'energy per weight and volume' ratio in the industry
- Zero components in LN50 : battery pack, on-board charger, vacuum fan and propulsion motors, DC-DC converter, DC-AC inverter

	Acid	LiFe Po	Li NMC*
Energy avail (kwh)	24	24.5	28.8
Weight (lbs)	1620	661	353
Energy (wh/lb)	15	37	82
Energy (wh/cu.in.)	1.31	2.13	5.74

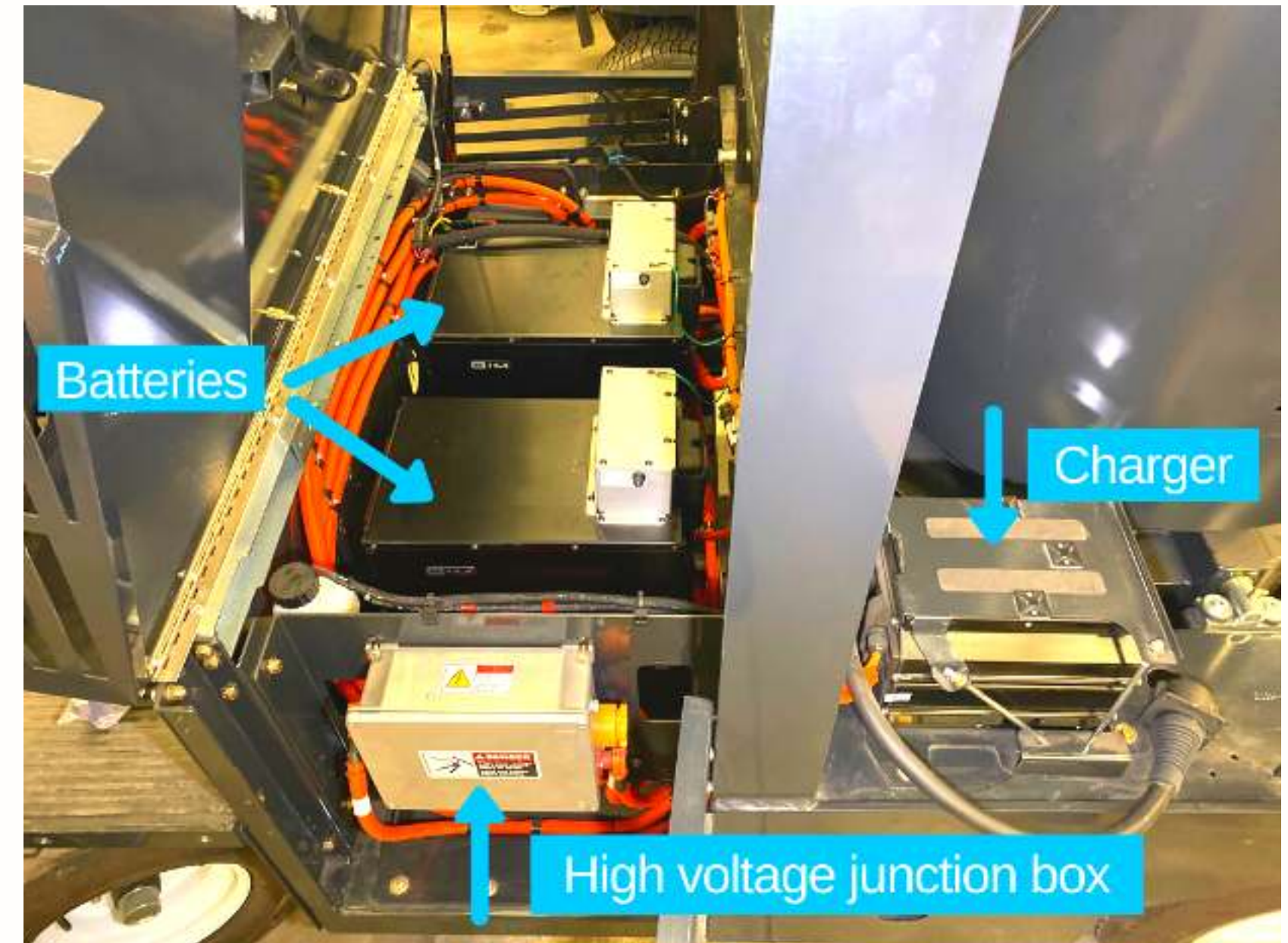




# Power



- Power pack : Lithium-Ion nickel manganese cobalt (Li NMC) high energy capacity, up to 28.8 kW/h (2 batteries)
- Voltage: 104 volts battery pack
- Autonomy : up to **9** hours on a single charge







# Power

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- Battery life span **8 to 10 years** under normal operating conditions
- Battery pack powers two 3-phase motors: **vacuum fan** and **propulsion system**
- All other electric components including cabin controls, displacement of vacuum hose, optional front vacuum head, operate on a 12-volt circuit
- Diagnostic cables provided for factory remote access / troubleshooting







# Charger



- Integrated on-board charger 6 kW
- Charger outlet: J1772 level 2, 240V/24A
- Charging time: up to 5 hours (15-18 hours if 120V wall socket is used instead)
- Charging status on diagnostic screen





# Zero ZF75-5 Motor

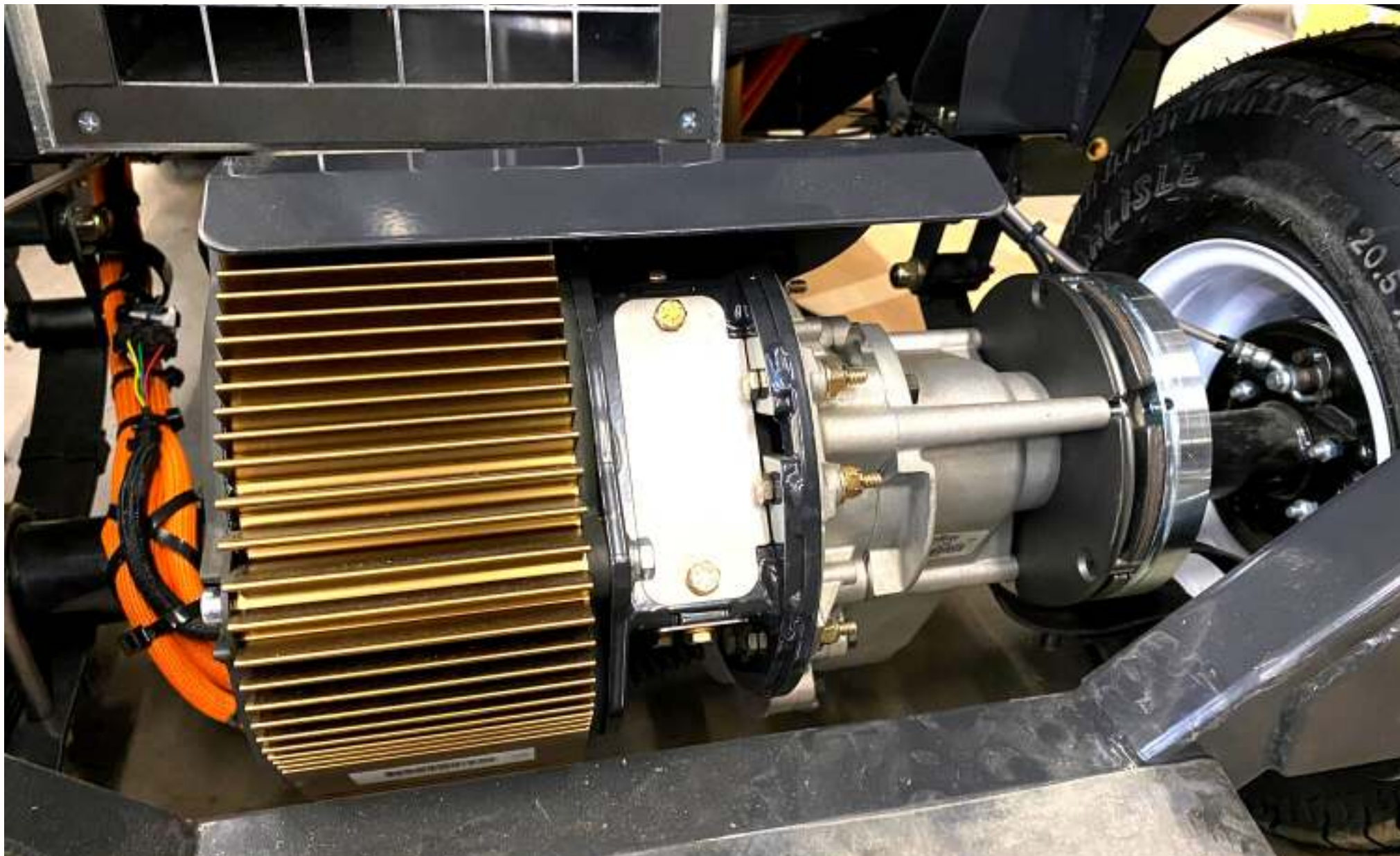
MOTOR:	ZF75-5
PEAK MOTOR TORQUE (FT-LB / N-M)	78 / 106
PEAK MOTOR HORSEPOWER (HP / KW)	46 / 34
PEAK MOTOR HORSEPOWER RPM	4300
PEAK EFFICIENCY	>94
MAX CONTINUOUS-RATED 30-MIN POWER (HP / KW)	21 / 15.4
MAX OPERATING RPM	7500
MAX OPERATING TEMP (DEG C)	150
MIN OPERATING TEMP (DEG C)	-40
WEIGHT (LBS / KG)	33/15







# Traction



- Drive: propulsion with 17 to 1 ratio
- Standard tires: 20.5 x 8 x 10 in. / 520x203x254 mm (205/65-10)
- Turf MV17094: 20 x 8 x 10 in. / 508x203x254 mm (205/60-10)
- Tire load capacity: 1323 lbs / 600 kg per tire
- Brakes: drum service brakes with electromagnetic parking brake
- Suspension: leaf spring front & rear





# General Machine Performance



- Max. forward speed: 12 mph (20 km/h)
- Max. reverse speed: 6 mph (10 km/h)
- Min. aisle turn: 180 in. (4572 mm)
- Internal turning radius: 60 in. (1524 mm)
- External turning radius: 90 in. (2286 mm)
- Cleaning speed:  
up to 84,480 sq. ft. per hour
- Curb climbing: 7 in. (178 mm) tall
- Gradeability: 11.3 deg. (20%) with full & empty hopper





# Drive

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- Steering: power assisted
- Propulsion: forward, neutral, reverse push button shifter

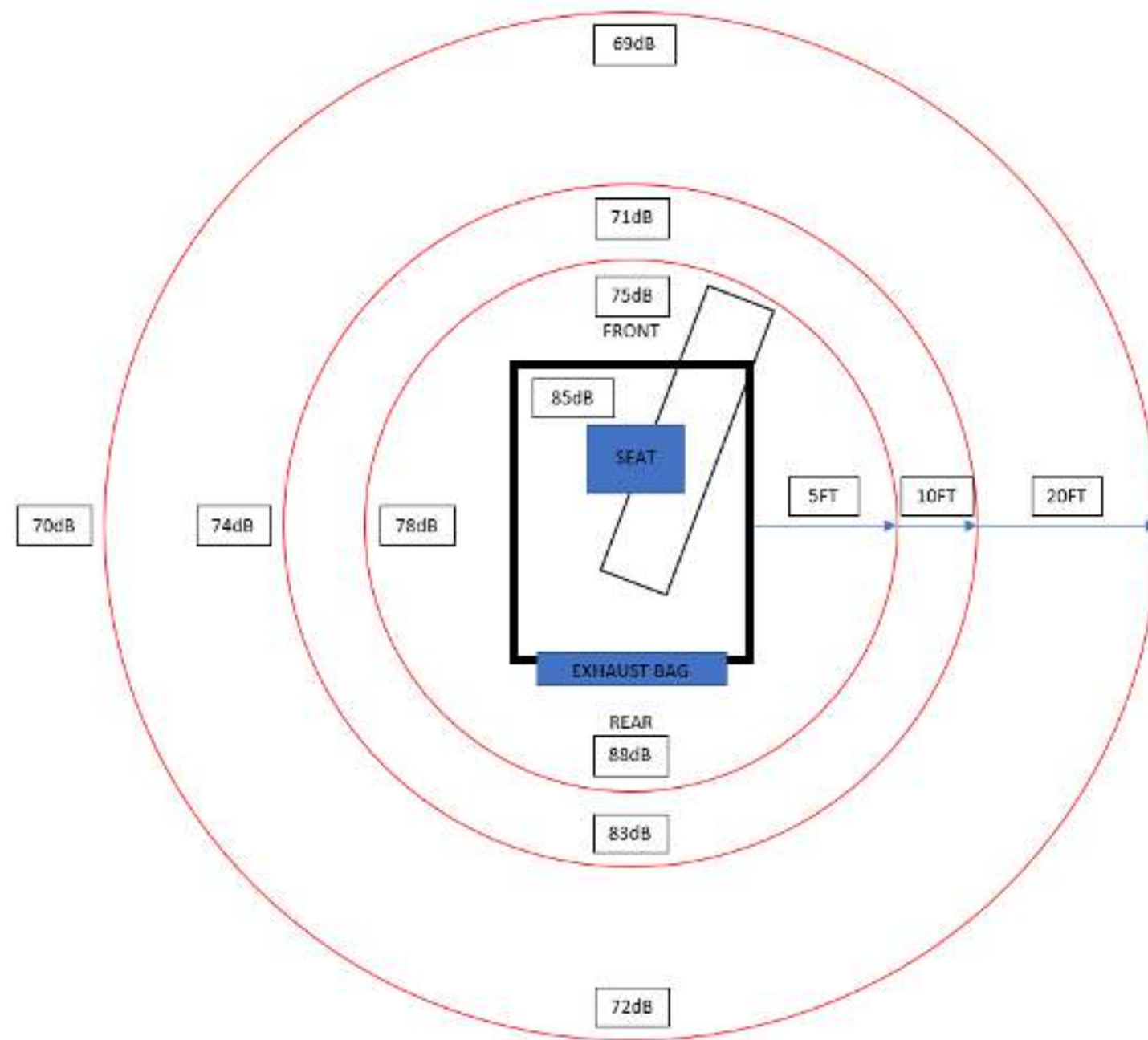


Brake pedal on opposite side of steering column





# Noise Reduction



*dB rating approximately 15%  
lower than LN50 diesel*



Front decibel

- Cabin: 85 dB
- 5 feet away: 75 dB
- 10 feet away: 71 dB





# Vacuum Fan and Suction System

- Vacuum passes through a fibrous bag and is collected inside the bag
- Vacuum rating: up to 1800 CFM using boost mode (4000 RPM)
- Straight-through suction system compacts litter 2:1 ratio
- Vacuum fan diameter: 14 in. (365 mm)
- Vacuum fan position: bottom mounted
- No litter comes in contact with the fan







## Vacuum Arm

- 160-degree arm movement with 50 in. (1270 mm.) reach
- Diameter: 7 in. (178 mm)
- Right-side support for hose storage in transport mode







# Vacuum Arm



- Bottom of suction hose maximum lift above ground surface: 26 in. (660 mm)







# Vacuum Arm Control



- Hydraulic assist up/down movement of the boom for effortless displacement
- 4-button joystick control for up / down / vacuum fan ON / vacuum fan OFF







## Vacuum Hose Support Arm



For operator safety and easy displacement of the boom | removable plate to access top hose





# Vacuum Head



- Optional – for effortless vacuuming
- Width: 48 in. (1219 mm)
- 2 operating positions, one on each side of the vacuum head







# Wander Hose



- Optional – for additional litter removal capability
- Length: 15 ft. (4.57 m)
- Hose diameter: 6 in. (152 mm)







## Rear-View Vision



Two convex mirrors  
mounted on vacuum  
hose with 340-degree  
rear visibility





# Litter Container and Bag

- 16-gauge powder-coated steel container
- Air cylinder power-assist tilt container
- Litter capacity
  - Volume: 75 gal. (284 L)
  - Weight: 150 lbs (68 kg)
- Bag size: 42 x 51 in. (1066 x 1295 mm)







## Bagless Debris System: Kevlar Bin



Optional – Kevlar bin can be emptied into off-the-shelf bag, or directly into dumpster





# Dust Control - Exhaust Bag



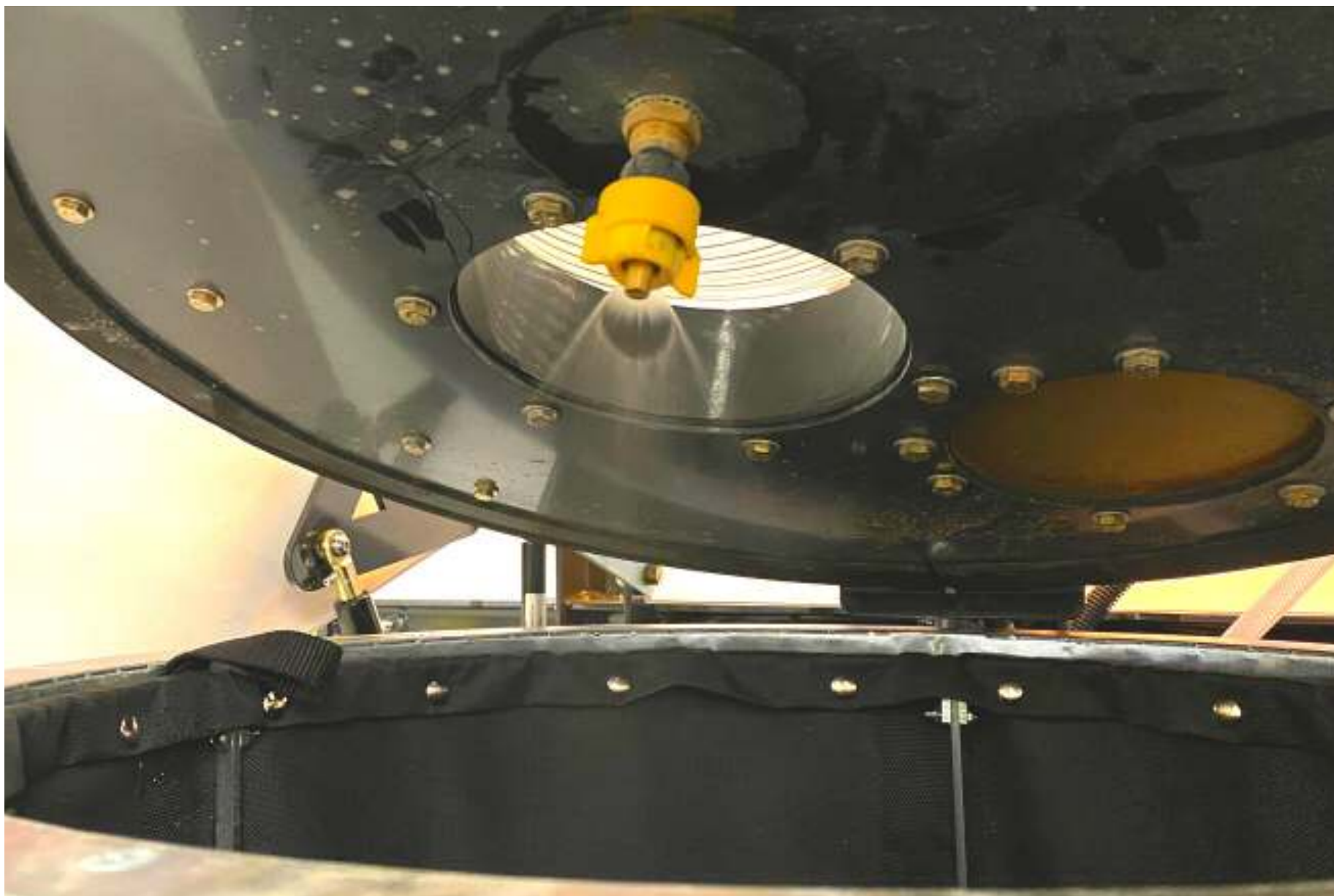
Exhaust bag reduces dust particles that can escape from minute holes of special Madvac collector bags (or Kevlar bin)







## Dust Control - Water Mist



Optional – intermittent water mist system with 10.17 gal. (38.5 L) water tank: controls dust and reduces risk of cigarette butt fire inside the container





# Operator safety



R.O.P.S.  
rollover protection system



Optional – fire extinguisher  
2.2 lbs (1 kg) dry powder



Emergency stop button





## Convenience



Foot step helps operator climb on board easily and safely



Foot activated horn gives operator more ease and convenience than pressing the turn signal lever



Console accessory box with USB / 12V aux outlet and rocker switch for optional water mist system and 48" wide vacuum head





# Convenience

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Optional –tire flat proofing  
(liquid sealant)



License plate holder



Broom and rake holder





# Convenience

Easy access to critical components of the machine

- Hinged power-assisted air cylinder tilt seat for access to battery compartment
- Hinged side door for HVJB (high voltage junction box) access







## Contact

To schedule a demo, request a quote, or for more information on the MADVAC LN50 electric all-terrain litter vacuum:

 **Excelway**®

 **Madvac**®

*2 Brands, ONE Great Company*

 **exprolink**

**Sourcewell**   
Formerly NJPA

 **canoe**  
procurement group of canada

awarded contract vendor **#093021-EXP**



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